

are strand-like. Also, the composite contains about 50-80 weight % thermoplastic. Optionally, a coupling agent, such as maleic anhydride grafted polyethylene, is present in the composite in order to enhance the interfacial bond between the discontinuous lignocellulose fiber and the thermoplastic.

In the Official Action, the Examiner rejected claims 13-16, 18, and 19 under §103(a) as being obvious over U.S. Patent No. 4,380,522 to Georlette et al., in view of U.S. Patent No. 5,194,461 to Bergquist et al. Applicant respectfully traverses for the following reasons.

Applicant respectfully notes that the Examiner has misread Georlette et al. in connection with the Examiner's allegation that Georlette et al. disclose a process for manufacturing articles from compositions containing 30-70% by weight of polyolefin and 30-70% by weight of cellulosic fibers (abstract of Georlette et al.).

The Georlette et al. compositions do *not* contain polyolefin. More particularly, applicant respectfully points out that the abstract of Georlette et al., as well as various portions of the specification, specifically states:

polyolefin which is a high density polyethylene *modified*  
with polar monomers [emphasis supplied]

and thus Georlette et al. do *not* disclose a process to make a composite of thermoplastic, i.e., polyolefin, and cellulosic fiber filler, such as the composite claimed by applicant. Rather, the resultant of the Georlette et al. process is always an article from compositions containing *modified* polyolefin and cellulosic fibers.

More specifically, Georlette et al. disclose an *in situ* process, where in the presence of the cellulosic fibers, a chemical reaction takes place between a polar monomer and a polyolefin to create a modified polyolefin, i.e., maleic anhydride grafted polyethylene, which is in a composition with the fibers. Hence, as correctly noted by the Examiner, the modified polyolefins are made by Georlette et al. from polyolefins and polar monomers, such as acrylic acid, methacrylic acid, or maleic anhydride.

Clearly, the required modified polyolefins in Georlette et al. are the *same kinds* of materials that applicant employs for the optional coupling agent in one of applicant's embodiments, as particularly set out in each of applicant's dependent claims 17, 18, and 19, all of which require about 50-80 weight % thermoplastic.

The resultant from the Georlette et al. process is not a composite of a thermoplastic such as polyolefin, for instance polyethylene, together with cellulosic fibers. The resultant contains no polyolefin, nor any other thermoplastic. Moreover, the cellulosic fibers are preferably particles with a small size of 0.1 to 3.0 mm, not strand-like.

With regard to Bergquist et al., the Examiner has correctly noted that they disclose a composite of recycled high density polyethylene and fibrous material, where the fibers may be several inches in length.

Nevertheless, Bergquist et al. are teaching *not* to use cellulosic fiber. More particularly, applicant respectfully points out that the Examiner has ignored that Bergquist et al. employ herbaceous fibers, specifically oat straw, soybean straw, or corn straw fibers. These are *non-wood* fibers; they are not cellulosic fibers.

The herbaceous fibers are well anchored to the plastic because, as clearly set out by Bergquist et al. at lines 39-42 of column 3:

Scanning electron microscopy discloses that oat straw fibers are well anchored in the resulting plastic matrix, due to the microscopic *projections* which are found along the outer surface of the straw. [Emphasis supplied.]

Thus, the entire purpose of Bergquist et al. is to find a *replacement* for the cellulosic component, i.e., wood material, of the prior art composites of polyethylene and cellulosic fiber, in order to obviate the drawbacks of the cellulosic fiber component of such prior art composites. Moreover, the herbaceous fibers are preferably granulated chips with a size of 0.25 to 0.5 inch (6.35 to 12.7 mm), not strand-like.

In contrast to Georlette et al. and Bergquist et al., applicant's composite specifically is a moldable thermoplastic composite comprising about 20-50 weight % discontinuous lignocellulose fiber filler (which comprises at least about 20% by weight of discontinuous lignocellulose fibers having a fiber length of at least about 15 mm and diameter of less than about 0.5 mm) and about 50-80 weight % thermoplastic, optionally with a coupling agent, such as maleic anhydride grafted polyethylene, to enhance the interfacial bond between the discontinuous lignocellulose fiber and the thermoplastic.

Hence, the combination of the two cited references teaches away from the present invention. The combination would lead the person of ordinary skill in the art to believe that a strand-like size for the fiber does not matter and so the fiber may be relatively large granulated chips (6.35 to 12.7 mm) as preferred in Bergquist et al. or may be small particles (0.1 to 3.0 mm) as preferred in Georlette et al., and moreover, the fibers should not even be cellulosic fibers, but instead should preferably be herbaceous as taught by Bergquist et al. for being an improvement over the prior art composites of polyethylene and cellulosic fibers. Furthermore, the combination teaches that the resultant composite should not even contain thermoplastic, such as polyolefin, since Georlette et al. teach a process where polyolefin is reacted with a polar monomer *in situ* to make modified polyolefin so that the resultant does not even contain polyolefin, such as polyethylene or polypropylene, but rather is a composition of modified polyolefin, such as maleic anhydride grafted polyethylene, together with the cellulosic fibers.

Thus, only by employing a hindsight-type of argument from the teaching of applicant's own specification can one come up with applicant's specific requirements for a composite that contains a certain amount of cellulosic fiber filler and a certain amount of thermoplastic, where a certain percent of the filler comprises fibers are strand-like of a particular length and diameter, optionally with a coupling agent, such as maleic anhydride grafted polyethylene. Applicant respectfully notes, as the Examiner should be well aware, that hindsight is an impermissible type of argument for combining references in an obviousness rejection.

Obvious to try, by arbitrarily picking and choosing components out of the prior art, is *not* the standard. Rather, applicant respectfully points out, as the Examiner should be well aware, the combination must teach or suggest *the claimed invention as a whole, including the desirability of selecting the specific components as claimed*. See, *Hodosh v. Block Drug Co.*, 786 F.2d 1136 (Fed. Cir. 1986).

Accordingly, applicant respectfully requests the Examiner to withdraw the rejection of claims 13-16, 18, and 19 as being obvious under §103(a).

Next, the Examiner rejected claim 17 under §103(a) as being obvious over the combination of Georlette et al. and Bergquist et al., further in view of U.S. Patent No. 5,932,357 to Coates et al. Applicant respectfully traverses for the following reasons.

Applicant's claim 17 is a dependent claim directed to applicant's embodiment where the composite of cellulose fiber filler and thermoplastic contains a coupling agent. Specifically in claim 17, the coupling agent is up to about 5% maleic anhydride grafted polypropylene.

The comments above with respect to the combination of Georlette et al. and Bergquist et al. are reincorporated by reference here.

Further with regard to Coates et al., applicant respectfully points out that this reference is non-analogous art. Applicant respectfully notes, as the Examiner should be well aware, that non-analogous art cannot be employed in an obviousness rejection under §103. See, *In re Clay*, 23 U.S.P.Q. 2d 1058, 966 F.2d 656 (Fed. Cir. 1992).

Regardless, if for the sake of argument one assumes that Coates et al. is indeed analogous and properly employed in a §103 rejection, this reference adds nothing to the combination of Georlette et al. and Bergquist et al.

Coates et al. disclose employing a coupling agent, such as maleic anhydride grafted polypropylene, in order to promote adhesion between *layers of two specific plastics*. One plastic layer is polypropylene and the other plastic layer is polyamide or polyester.

As discussed in Coates et al., paint typically used on metal does not adhere well to polypropylene, which is strong and lightweight and thus desirably used as a plastic part together with a metal part in a complex article, for instance an automobile.

Hence, the purpose of Coates et al. is to have a plastic layer (the polyamide or polyester) to which paint conventionally used with metal parts will readily adhere, so that a complex article that has a polypropylene part and also a metal part can be readily painted at the same time. In short, Coates et al. have made a sandwich of polypropylene/(polyamide or polyester)/paint.

Coates et al. have no fiber, neither cellulosic as in Georlette et al. nor herbaceous as in Bergquist et al. Thus, the disclosure in Coates et al. vis-à-vis paint and two plastic layers and the silence in Coates et al. vis-à-vis fiber cannot teach or suggest anything whatsoever with regard to overcoming the problems with obtaining a strong composite of a thermoplastic and fiber.

Accordingly, applicant respectfully requests the Examiner to withdraw the rejection of claim 17 under §103(a) in view of the combination of Georlette et al., Bergquist et al., and Coates et al.

### **CONCLUSIONS**

Applicant respectfully submits that the present invention as claimed patentably distinguishes over any of the references taken either alone or in any combination whatsoever, and accordingly, respectfully requests the Examiner to withdraw the various rejections of the claims under §103(a). Further, applicant respectfully submits that the case is in condition for allowance, and early allowance is earnestly solicited.

If the Examiner has any questions with regard to the above Remarks, applicant respectfully requests the Examiner to telephone the undersigned in order to resolve such matters and obviate the issuance of another Official Action.

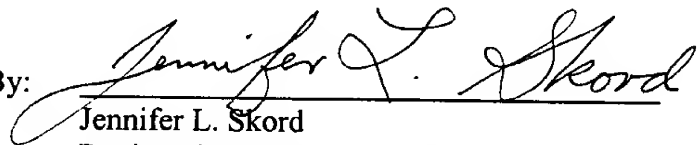
**DEPOSIT ACCOUNT**

Although a check in the amount of \$460.00 is enclosed covering the requisite 3-month extension fee, the Commissioner is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-4365.

Respectfully submitted,

Date: July 24, 2002

By:



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